

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Appln. No. 09/816,234

Attorney docket No. Q63639

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A carriage servo apparatus comprising a carriage device for supporting a pickup device for recording or reproducing information relevant to an information recording face and a moving device for moving the carriage device in a direction parallel to said information recording face based on a drive signal, said carriage servo apparatus further comprising:

a drive signal detecting device for detecting a ~~minimum~~detected value of said drive signal ~~required for moving at a time when an increase in a level of the drive signal from a predetermined level causes~~ the carriage device to initially move from a still state thereof; and

a setting device for setting said drive signal based on said detected ~~minimum~~ value when the information is recorded or reproduced.

2. (currently amended): The carriage servo apparatus according to claim 1, wherein recording or reproducing said information is executed by emitting light beams to an information track on said information recording face, and wherein said carriage servo apparatus further comprises an applying device for applying said set drive signal to said moving device, when a value of an error signal indicating displacement of an emission position of said light beams relative to said information track is equal to or greater than a threshold set based on said ~~minimum~~detected value,.

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3. (currently amended): The carriage servo apparatus according to claim 1 or 2, wherein said drive signal detecting device comprises:

- a stillness detecting device for detecting whether or not said carriage device is still; and
- a minimum drive signal applying device for, while changing a value of said drive signal in a state in which the carriage device is still, applying the drive signal to said moving device, the drive signal value applied when said stillness detecting device detects start of movement of said carriage device due to the applying of said drive signal is defined as said minimum detected value.

4. (withdrawn): The carriage servo apparatus according to claim 1 or 2, wherein said drive signal detecting device comprises:

- a sensing device for sensing vibration of a light focusing device supported in said pickup device, said light focusing device focusing the light beams on said information recording face; and
- a minimum drive signal applying device for, while changing the value of said drive signal in a state in which the carriage device is still, applying the drive signal to said moving device, and

wherein the value of the drive signal applied when said sensing device senses the vibration of said light focusing device along with the movement of said carriage device due to the applying of said drive signal is defined as said minimum value.

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5. (withdrawn): The carriage servo apparatus according to claim 4, wherein said pickup device comprises a light receiving device for receiving reflection light of said light beams from said information recording face, and wherein said sensing device senses the vibration of said light focusing device due to change in emission position on said light receiving device for the reflection light.

6. (withdrawn): A carriage servo apparatus comprising a carriage device for supporting a pickup device for recording or reproducing information relevant to an information recording face and a moving device for moving said carriage device in a direction parallel to said information recording face based on a drive signal, said carriage servo apparatus further comprising:

an applying time detecting device for detecting an applying time during which said drive signal is applied to said moving device; and

a setting device for setting said drive signal based on said applying time detected.

7. (withdrawn): The carriage servo control apparatus according to claim 6, wherein recording or reproducing said information is executed by emitting light beams to said information recording face, said servo control device further comprising an applying device for, in recording or reproducing the information, when a value of an error signal indicating displacement between an emission position of said light beams and a position of an information track on said information recording face in a parallel direction to said direction is equal to or greater than a threshold set based on said applying time detected, applying said drive signal set to

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said moving device.

8. (original): The carriage servo apparatus according to claim 2 or 7, wherein said setting device sets said error signal having a value equal to or greater than said threshold as said drive signal, and wherein said applying device applies said error signal set as the drive signal to said moving device.

9. (currently amended): An information reproduction apparatus comprising:
a carriage servo apparatus employed for reproduction of the information recorded on the information recording face; and
a reproduction device;
wherein said carriage servo apparatus comprises:
a carriage device for supporting a pickup device for recording or reproducing information relevant to an information recording face;
a moving device for moving the carriage device in a direction parallel to said information recording face based on a drive signal;
a drive signal detecting device for detecting a ~~minimum~~-detected value of said drive signal required for moving at a time when an increase in a level of the drive signal from a predetermined level causes the carriage device to initially move from a still state thereof; and
a setting device for setting said drive signal based on said detected ~~minimum~~-value when the information is recorded or reproduced; and
wherein said reproduction device is for reproducing said recorded information based on a

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detection signal from said pickup device, said detection signal corresponding to the information.

10. (currently amended): A carriage servo control method comprising a process for moving a carriage device for supporting a pickup device for recording or reproducing information relevant to an information recording face in a direction parallel to said information recording face by applying a drive signal to a moving device, wherein said carriage servo control method comprising:

a process of detecting a ~~minimum~~detected value of said drive signal ~~required for moving~~
at a time when an increase in a level of the drive signal from a predetermined level causes said
carriage device to initially move from a still state ~~thereof~~; and

a process of setting said drive signal based on said detected ~~minimum~~ value when said information is recorded or reproduced.

11. (currently amended): The carriage servo control method according to claim 10, wherein recording or reproducing said information is executed by emitting light beams to an information track on said information recording face, and wherein said carriage servo control method further comprises a process of applying said drive signal set to said moving device when a value of an error signal indicating displacement of an emission position of said light beams relative to said information track is equal to or greater than a threshold set based on said ~~minimum~~detected value.

12. (currently amended): The carriage servo control method according to claim 10 or

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11, wherein said process of detecting the ~~minimum~~detected value of the drive signal comprises: a process of, while changing a value of said drive signal in a state in which the carriage device is still, applying the drive signal to said moving device, in order to obtain said ~~minimum~~ detected value, and wherein, when the start of movement of said carriage device due to the applying of said drive signal is detected, a value of the drive signal applied is detected as said ~~minimum~~detected value.

13. (withdrawn): The carriage servo control method according to claim 10 or 11, wherein said process of detecting the minimum value of said drive signal comprises:
a process of sensing vibration of the light focusing device supported in said pickup device, said light focusing device focusing said light beams on said information recording face;
and
a process of, while changing the value of said drive signal in a state in which the carriage device is still, applying the drive signal to said moving device, and
wherein, when vibration of said light focusing device along with movement of said carriage device due to the applying of said drive signal is sensed, a value of the drive signal applied is detected as said minimum value.

14. (withdrawn): The carriage servo control method according to claim 13, wherein said pickup device comprises a light receiving device for receiving reflection light of said light beams from said information recording face, and wherein said process of sensing vibration of the light focusing device senses vibration of said light focusing device due to change in emission

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position on said light receiving device for said reflection light.

15. (withdrawn): A carriage servo control method comprising a process for moving a carriage device for supporting a pickup device for recording or reproducing information relevant to an information recording face in a direction parallel to said information recording face by applying a drive signal to a moving device, wherein said carriage servo control method comprising:

a process of detecting an applying time relevant to said moving device for said drive signal; and

a process of setting said drive signal based on said detected applying time.

16. (withdrawn): The carriage servo control method according to claim 15, wherein recording or reproducing said information is executed by emitting light beams to said information recording face, said servo control device further comprising an applying device for, in recording or reproducing the information, when a value of an error signal indicating displacement between an emission position of said light beams and a position of an information track on said information recording face in a parallel direction to said direction is equal to or greater than a threshold set based on said applying time detected, applying said drive signal set to said moving device.

17. (original): The carriage servo control method according to claim 11 or 16, wherein said process of setting the drive signal sets said error signal having a value equal to or

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greater than said threshold as said drive signal, and said process of applying the set drive signal
to said moving device applies said error signal set as the drive signal to said moving device.